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Bill:

Thank you for returning to the original language retaining the upper limit for non-residential outdoor design conditions at 0.5% annual basis. I was preparing to comment on this when I learned of Mark's comment and resolution.

I am writing to provide supporting justification for returning to the original language. Can I guess why the change was proposed: to discourage over sizing and the associated unlimited ramping up of electric demand as outdoor temperatures increase? As you know, I am always working toward better sizing of HVAC systems. However, I would strongly advise that the outdoor design condition is the wrong "lever" to adjust toward this goal.

Decreasing the maximum outdoor design condition would likely only result in the use of larger implicit "margins of safety" and/or more conservative estimates of internal loads. The size of the systems would remain the same, but the design calculation and the optimization of the system would be based on conditions that are further from the actual maximum conditions. This would not help performance under "heat storm" conditions, when efficiency is of utmost importance.

(Note: I encourage design methods that emphasize more accuracy all around, with outdoor design temperatures closer to the actual maximum, more reasonable estimates of internal loads and load diversity, and "margins of safety" that are transparent and subject to review. I would be happy to provide input on this--for the future.)

Lowering outdoor design temperatures also creates a mixed message with regard to the rating of air conditioning equipment. As you may know, R&D continues toward air conditioners designed and rated for more efficient operation under the extreme "heat storm" conditions that

challenge us in California. Moving toward ratings at more realistic California conditions has always been controversial. Lowering design temperatures while arguing for equipment to be rated at higher temperatures could obscure the goal and increase confusion.

Finally, as a long time participant in the ASHRAE Standard 55 process, I would advise that one of the key features of this standard is the selection of the appropriate exceedence level for a particular facility through the choice of outdoor design condition. This is an important interaction between ASHRAE 55, climate data, and design methods. This relationship needs to be preserved, including the current range of outdoor conditions.

Thanks for your attention to this matter. Please feel free to contact me with any questions or feedback.

Congratulations on your general progress with the new standard. It is properly capturing the recent technical advances and new knowledge toward more cost-effective buildings. I am looking forward to working with it.

Regards,

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